



Lok On Pai desalination plant, Hong Kong's first desalination plant.

HK HAS GONE WITH THE FLOW SINCE DAYS OF OLD

There is no doubt that a reliable supply of clean water is vital for any city.

We may now take for granted the fact that water will always be available from our taps, but can anyone recall the days of water restrictions?

In my last article, I described how our water supply was maintained by building reservoirs in hilly suburbs in Hong Kong.

As our population grew, it became increasingly difficult to find suitable locations to build more reservoirs.

We ran out of valleys, and other locations that could store water were at too low a level for a gravity feed to consumers.

The solution was to pump water into high level enclosed tanks, called service reservoirs, to provide the necessary water head for a reliable supply.

A network of piping, pumping systems and service reservoirs was used. This also allowed filtration and chemical dosing to ensure fresh water supply is of a high quality.

The rapid increase in population from the 1950s to the 1970s overtook the ability to supply water.

Despite new reservoirs such as Shek Pik on Lantau and closing off bays to build the Plover Cove Scheme and the Hight Island Reservoir, we finally reached the limit of reservoir capacity within our borders.

In any event, the continued construction of these facilities could never keep up with the pace of water demand, and some controls became necessary.

We tried desalination in the late 1960s. Surrounded by sea, if we can convert the seawater into fresh water, we will be able to solve our water supply problem forever. But the snag is in the cost.

Traditional desalination processes involve distillation, which was a reliable but expensive process.

Based on oil prices in the 1960, the SAR administration estimated that we could afford it.

Many of us remember the oil crisis of



Nuts and bolts

Edmund Leung

1973 that forced prices to jump by many times. The government found it difficult to justify operating a distillation plant burning fuel oil.

Our first desalination plant, constructed at Lok On Pai, Castle Peak, was ready for operation by then, but rising costs forced the newly commissioned plant to be mothballed indefinitely, and eventually dismantled.

It took our authorities some 50 years before they were able to restart the desalination system, and we are now trying out a reverse osmosis system in Tseung Kwan O, which should be a lot more cost-efficient to operate.

Meanwhile, the residents of Hong Kong had to face water supply restrictions.

Those of us who lived here in the 1950s and 1960s will well remember the agony of having to store water in our kitchens and toilets, as water supply was restricted to a few hours of a day.

During the drought of the mid-1960s, we had to make do with three hours of supply every four days. You can imagine the ordeal if you happen to live on the higher floors of a tenement building, and your lower-floor neighbors kept the tap running during those vital three hours, causing water pressure to drop and you to miss the opportunity to stock up for the next four days.

Fortunately, the water supply scheme from Dongjiang provided a large and steady supply of fresh water to end the restrictions, and we should be grateful for the foresight of our water supplies department in arranging that.

The people of Hong Kong now will never have to suffer from a shortage of fresh water, even in seasons of drought. **Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure**